

p14 ARF (DCS-241): sc-53640

BACKGROUND

The progression of cells through the cell cycle is regulated by a family of proteins designated cyclin-dependent kinases (Cdks). Sequential activation of individual members of this family and their consequent phosphorylation of critical substrates promotes orderly progression through the cell cycle. Multiple proteins are encoded by the tumor suppressor gene CDKN2A (MTS1/p16^{INK4a}) via translation of alternate reading frames, resulting in the production of the p19 ARF protein in mice and the p14 ARF protein in humans. p14 ARF induces an increase in MDM2 and p21 levels and leads to cell cycle arrest in both G₁ and G₂/M. p14 ARF is negatively regulated by p53 and is known to bind directly to MDM2. CDKN2A also encodes the mitotic protein p16, which binds to and inhibits the Cdk4/cyclin D complex.

REFERENCES

- Sherr, C.J. 1993. Mammalian G₁ cyclins. *Cell* 73: 1059-1065.
- Hunter, T. 1993. Braking the cycle. *Cell* 75: 839-841.
- Larsen, C.J. 1997. Contribution of the dual coding capacity of the p16^{INK4a}/MTS1/CDKN2 locus to human malignancies. *Prog. Cell Cycle Res.* 3: 109-124.
- Serrano, M. 1997. The tumor suppressor protein p16^{INK4a}. *Exp. Cell Res.* 237: 7-13.
- Kamijo, T., et al. 1997. Tumor suppression at the mouse INK4a locus mediated by the alternative reading frame product p19 ARF. *Cell* 91: 649-659.

CHROMOSOMAL LOCATION

Genetic locus: CDKN2A (human) mapping to 9p21.3.

SOURCE

p14 ARF (DCS-241) is a mouse monoclonal antibody raised against recombinant p14 ARF of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p14 ARF (DCS-241) is available conjugated to agarose (sc-53640 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-53640 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53640 PE), fluorescein (sc-53640 FITC), Alexa Fluor® 488 (sc-53640 AF488), Alexa Fluor® 546 (sc-53640 AF546), Alexa Fluor® 594 (sc-53640 AF594) or Alexa Fluor® 647 (sc-53640 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53640 AF680) or Alexa Fluor® 790 (sc-53640 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

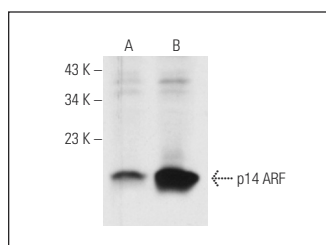
p14 ARF (DCS-241) is recommended for detection of p14 ARF of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for p14 ARF/p16 siRNA (h): sc-37622, p14 ARF/p16 shRNA Plasmid (h): sc-37622-SH and p14 ARF/p16 shRNA (h) Lentiviral Particles: sc-37622-V.

Molecular Weight of p14 ARF: 14 kDa.

Positive Controls: Saos-2 cell lysate: sc-2235, HeLa whole cell lysate: sc-2200 or BJAB whole cell lysate: sc-2207.

DATA



p14 ARF (DCS-241): sc-53640. Western blot analysis of p14 ARF expression in HeLa (A) and BJAB (B) whole cell lysates.

SELECT PRODUCT CITATIONS

- Roberti, A., et al. 2011. Ubiquitin-mediated protein degradation and methylation-induced gene silencing cooperate in the inactivation of the INK4/ARF locus in Burkitt lymphoma cell lines. *Cell Cycle* 10: 127-134.
- Love, I.M., et al. 2012. The histone acetyltransferase PCAF regulates p21 transcription through stress-induced acetylation of Histone H3. *Cell Cycle* 11: 2458-2466.
- Maglic, D., et al. 2013. Prognostic value of the hDMP1-ARF-Hdm2-p53 pathway in breast cancer. *Oncogene* 32: 4120-4129.
- Dreidax, D., et al. 2013. Low p14 ARF expression in neuroblastoma cells is associated with repressed histone mark status, and enforced expression induces growth arrest and apoptosis. *Hum. Mol. Genet.* 22: 1735-1745.
- Lee, J.W., et al. 2019. RUNX3 regulates cell cycle-dependent chromatin dynamics by functioning as a pioneer factor of the restriction-point. *Nat. Commun.* 10: 1897.
- Tomicic, M.T., et al. 2021. Oxaliplatin-induced senescence in colorectal cancer cells depends on p14 ARF-mediated sustained p53 activation. *Cancers* 13: 2019.

RESEARCH USE

For research use only, not for use in diagnostic procedures.